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**THE BIRDS OF SOUTHEASTERN TEXAS AND SOUTHERN ARIZONA
OBSERVED DURING MAY, JUNE AND JULY, 1891.**

BY SAMUEL N. RHOADS.

With the idea of investigating the avifauna of the southern border of the United States, and collecting a series of the birds of Florida, Texas and Arizona,¹ I left Philadelphia March 26th, 1891, arriving at Jacksonville, Florida, on the fifth of the following month. A sojourn of five weeks was made in the southwestern part of the state and considerable collections obtained. Few facts additional to what has been already written on the bird life of this region were ascertained, and it is not my intention to treat in detail of this part of the trip.

I arrived at Corpus Christi, Texas, May 17th, and here a three weeks' stay was made. I then journeyed westward to Tucson, Arizona, arriving on the tenth of June, and collecting birds in the immediate vicinity until the nineteenth. That morning I took stage for Oracle, a post-hamlet situated in the oak belt forty miles northward, among the foot-hills of the Catalina Mountains. Collecting was carried on in that vicinity until July 2nd, when the mountains were ascended, and I took up my abode for a week in a lumber camp among the pines of Mt. Lemon at an elevation of between 7000 and 8000 ft. and about 2000 feet below the summit of that mountain.

The birds of southern Texas, especially those in the vicinity of Corpus Christi, have received no small amount of attention from naturalists. Mr. Beckham enumerates eight publications bearing directly on this subject, prior to his own, which appeared in 1887.² Within a few months Mr. Chapman has published a paper³ giving the results of his observations made on exactly the same ground which I covered three weeks later. In fact, I was conducted by Mr. Priour, who acted as my guide, to the same collecting grounds in the immediate vicinity of Corpus Christi and along the Nueces River and

¹ Mr. Rhoads has generously presented his entire collection, numbering about one thousand skins to the Academy of Natural Sciences of Philadelphia. The Texas series numbers 267 specimens and the Arizona collection 398. Owing to Mr. Rhoads' absence from Philadelphia when preparing this paper, he was unable to make a critical examination of the specimens, and at his request I have added notes on such as exhibited any peculiarities; these annotations are followed by my initials.—Witmer Stone.

² Proc. U. S. Nat. Mus. Vol. 10, p. 633.

³ Bull. Am. Mus. Nat. Hist. Vol. III, No. 2.

Bay, which he had previously visited with Mr. Chapman. The interval between our visits, however, gave opportunity for a decided readjustment of the bird fauna, due to migration and the nesting of resident species.

Mr. Beckham's personal observations of Texan birds terminated in March, and so far as I can discover, very few, if any, of our observers have recorded data relating to the early summer birds of the Corpus Christi region; Dresser's "summer" notes relating chiefly to the vicinity of San Antonio.

Further description of the region included in the following notes would be superfluous after all that the aforementioned authors have written on the subject. Before proceeding with the annotated list, however, the following observations may be made.

Though nearly all the non-resident birds had passed through, and a drouth existed, quite equal in severity to that prevailing during Mr. Beckman's stay, my experience agrees with that of Mr. Chapman—birds were abundant everywhere. Nearly half of the birds observed were feeding their young before my departure, and in many cases the full-fledged young were procured. This rendered all the more conspicuous the fact that many boreal species, especially among the water birds, still lingered. I received corroboration in various ways that the annual over-stepping of faunal limits by many species belonging to a more southerly district, and their subsequent disappearance toward the end of the spring migration, is a marked feature at Corpus Christi. These birds undoubtedly return in due time to their ancestral haunts in Mexico ere the breeding season begins. To what extent this movement, due undoubtedly to the sexual excitability and ignorance of the country exhibited by birds of the first year, should be held to account for the "faunal in-osculation" which Beckham speaks of, I am unable to prove. From all that may be proven by and inferred from the observations of collectors in this region ten years ago, it seems that several species are now represented in the avifauna of Corpus Christi which were then strangers to it.

Owing to the position of this territory, forming as it were the keystone of three great faunal arches, eastern, western and southern, where in time past the birds from their respective regions approached so nearly, that a slight change in physical or climatic conditions would precipitate more intimate relations. Precisely such a state of affairs has happened, and the intermingling of races and

species on new territory has become permanent. In seeking a cause for this I am led to the belief that it is due chiefly to the introduction of cattle. When we remember that the growth of dense mesquite chaparral, which now forms such a marked feature in the landscape of southeastern Texas, and is steadily encroaching upon the title of open prairie yet remaining, is directly due to the grazing of immense herds of cattle which have, in their search for subsistence, robbed the prairie fire of its fuel and at the same time distributed the seeds of mesquite and other arborescent shrubs, this statement may not appear as paradoxical as it seems. The comparatively sudden conversion of many square miles of debatable ornithological ground from prairie to brush-land in this manner, would afford just such inducements to arboreal birds in the further extension of their winter range from the north and their summer range from the south as now exist. On the other hand, as the true prairie lands diminish, the more strictly plain-haunting species must disappear. A comparison of the relative abundance of the species noted by Beckham as compared with the same observed this year by Mr. Chapman and myself tends to prove this. Even in 1887, the date of Beckham's observations, Dr. Havard reports the mesquite as "shrubby" and Beckham characterizes it as "a dreary waste of cactus," etc. The growth of mesquite in the surrounding country, even since then, will tally well with the faunal changes recorded, for it must be borne in mind that until, say seven years ago, the overstocking of pasture with cattle and the consequent effect upon a previously superabundant pasturage did not affect the country far from city limits; so that beyond a comparatively small area surrounding the city, the virgin prairie retained its original features. For this reason birds were scarce, not so much because of drouth, but for lack of shelter and food suited to those of arboreal habits. Many insectivorous birds are found breeding in localities where water is unobtainable save in the form of dew, and, owing to the juicy nature of their food, they can most likely enjoy life indefinitely without the luxury of a drink. It seems therefore probable that the late increase of passerine birds in this part of Texas is due, not to an excess of rainfall, or to the absence of droughts in late years, but to the vast extension of tree-covered areas into the prairie and the increase of insect and vegetable food resulting from this cause; and these conditions apply not only to the increase of

individuals among old forms. but equally to the additional species now ascribed to the Corpus Christi fauna.

The subjoined list includes all birds observed by me; those species of which I did not obtain specimens being indicated by an asterisk. I wish here to acknowledge my grateful indebtedness to Mr. Witmer Stone, Conservator of the Ornithological Section of the Academy of Natural Sciences of Philadelphia, not only for receiving and caring for the collection during my absence, but also for invaluable aid in the identification of the material and in revising my notes.

TEXAS.

1. *Larus atricilla* Linn. Laughing Gull.

Common, breeding abundantly about Corpus Christi Bay. Nearly a third of those observed still retained the young, autumnal plumage of last year.

2. *Larus franklinii* Sw. & Rich. Franklin's Gull.

Five or six individuals of this exquisite gull were noted and one male was taken on the first of June. The female which accompanied it escaped me. The presence of this species at so late a date seems to corroborate Mr. Priour's assertion that a few remain to breed. The fly-catching habits of Franklin's Gull are noteworthy. I have seen a pair rise from a sand-bar, and proceeding directly to the mainland, begin to beat the chaparral in a most systematic manner for hours at a stretch, keeping meanwhile just out of gunshot, and leisurely gathering, in company with Henry's Night-hawk, the superabundant insect food which came in their way.

3. *Gelochelidon nilotica* (Hasselq.). Gull-billed Tern.

Breeding on the marshes but not common.

***4. *Sterna tschegrava* Lepech.** Caspian Tern.

Common, but not found breeding in Nueces Bay.

5. *Sterna forsteri* Nutt. Forster's Tern.

Most abundant of the genus, and like its northern congeners, the first to proclaim and resent the presence of an intruder on its breeding grounds.

6. *Sterna antillarum* (Less.). Least Tern.

It is surprising that no one has recorded the Least Tern in Texas.¹ Priour assured me that before the destruction carried on a

¹ Merrill and Sennett found it breeding on sand-bars in the Rio Grande.

few years ago, the "Striker," as he calls it, was abundant. I found several skins of this species among some thousand millinery pelts collected in this locality by Messrs. Fancher and Noakes of Corpus Christi. On one occasion I noted a flock of a dozen flying near the town, and I rarely went to the bay without seeing three or four. From the action of these birds I judge they made their headquarters further south and were breeding.

7. *Hydrochelidon nigra surinamensis* (Gmel.). American Black Tern.

Saw this bird only at the mouth of the Nueces River, where one was secured, a full plumaged breeding male. Saw nearly a dozen altogether, always singly. This species is also heretofore unrecorded from the vicinity of Corpus Christi.

8. *Rhynchops nigra* Linn. Black Skimmer.

Abundant and breeding.

9. *Phalacrocorax mexicanus* (Brandt). Mexican Cormorant.

An immense flock of these birds was found sitting on the peninsular flats around the margin of an old pond. One individual shot from this flock was a young male of the year. These birds had evidently done breeding but just where they do breed, I was unable to discover.

10. *Anas fulvigula maculosa* (Senn.). Mottled Duck.

This is the commonest representative of its family on Nueces Bay in June, where it breeds in the marshes.

***11. *Spatula clypeata* (Linn.).** Shoveller.

A few were observed at the mouth of the Nueces River.

72. *Ajaja ajaja* (Linn.). Roseate Spoonbill.

On the 28th of May, accompanied by Mr. Priour, I sailed down to the mouth of the Nueces River in search of these birds. At a distance of two miles a couple of large flocks could be descried as a dull rosy streak along the water's edge. We approached near enough to make, with the aid of a glass, an excellent survey of the flocks in the act of feeding before they noticed our presence. When within about two hundred yards of them, the whole company of four or five hundred individuals simultaneously raised their heads and faced about. On approaching some fifty yards nearer, the sudden righting about just mentioned was succeeded by a most interesting series of manœuvres, consisting of a contraction and filling in of all the gaps in the line; and just as this was

completed, with a rush of wings and a glorious burst of color, they arose. Many other detachments joined them until the entire flock numbered about six hundred. Most of these alighted some two miles off, while a few returned to their former feeding ground. All of these birds, including the young, were moulting. The adults were just shedding their brilliant scarlet patches, and their skins were bristling with pin feathers. Fully one-third were in the whitish plumage of the first year. According to Mr. Priour the Spoonbill attains its maximum plumage development some time in January, but he was unable to state whether this was due to a second moult in December, or whether there is merely a wearing away of the tips of the feathers as in *Agelaius* and other birds.

The Spoonbills now leave the vicinity of Corpus Christi the latter part of February, and though a few stragglers sometimes remain all the year, none have been known to breed on the Texas coast of late years. This state of affairs is probably due to their persecution and to the destruction of the forests between Corpus Christi and Brownsville which used to reach nearer the river mouths, affording this formerly abundant species suitable rookery sites.¹ It is probable that most of the flock of birds seen on Nueces Bay were raised somewhere on the coast south of Brownsville. After raising their young in comparative safety, they return yearly to this spot to spend the summer and early winter months, arriving in considerable numbers, even so early as the latter part of April, and attaining their maximum numbers in the latter part of May. Their evident attachment to the vicinity of Nueces Bay must be due to the facilities it affords them in the great item of food supply, for the reception accorded these birds by Corpus Christi gunners is far from encouraging.

13. *Botaurus exilis* (Gmel.). Least Bittern.

How this bird could have been overlooked by former observers I cannot conceive. Several were flushed in the marshes of Nueces Bay and two were secured, one of them a female with distended ovaries.

***14. *Ardea herodias* Linn.** Great Blue Heron.

One seen.

***15. *Ardea egretta* Gmel.** American Egret.

Three seen.

¹ Merrill and Sennet found a few in a lagoon heronry on the Rio Grande.

- *16. *Ardea tricolor ruficollis* (Gosse). Louisiana Heron.

One of these birds was seen among the reeds at the mouth of the Nueces River.

- *17. *Ardea virescens* Linn. Green Heron.

Several seen.

- *18. *Nycticorax nycticorax nævius* (Bodd.). Night Heron.

Immense numbers of this species were found in the tall brake at the Nueces River mouth. The flocks were composed of young and old in every stage of plumage and had evidently resorted thither from some distant rookery, as no signs of nests could be found in the immediate vicinity.

- *19. *Rallus elegans* Aud. King Rail.

A rail, presumably of this species, was flushed twice in the peninsular marsh near the city, but I failed to secure it.

20. *Recurvirostra americana* Gmel. Avocet.

Pairs and scattered individuals were seen throughout my stay. Mr. Priour states they breed in the vicinity.

21. *Himantopus mexicanus* (Müll.). Black-necked Stilt.

This clamorous and uneasy bird breeds abundantly in suitable places near Corpus Christi. Nests with eggs, but no young, were found.

22. *Tringa maculata* Vieill. Pectoral Sandpiper.

Three seen, one of which I secured.

23. *Tringa fuscicollis* Vieill. White-rumped Sandpiper.

Nearly a dozen of these wary birds frequented the salt ponds on the mainland shore of Nueces Bay. One was shot. This species does not appear to have been observed here before.

24. *Ereunetes pusillus* (Linn.) Semipalmated Sandpiper.

Small flocks were frequently seen and several specimens secured.

25. *Totanus melanoleucus* (Gmel.). Greater Yellow-legs.

A pair, evidently mated, were shot.

26. *Symphemia semipalmata inornata* Brewst. Western Willet.

Two specimens, probably referable to this race, were obtained. Willets were breeding, in limited numbers, on the city flats.

27. *Numenius longirostris* Wils. Long-billed Curlew.

Three were noted. They seemed to have done breeding.

- 28. *Charadrius squatarola* (Linn.).** Black-bellied Plover.

The abundance of this Plover, so late as the seventh of June, in this neighborhood, is of interest.

- 29. *Aegialitis vocifera* (Linn.).** Kildeer.

Not abundant.

- 30. *Aegialitis semipalmata* Bonap.** Semipalmated Plover.

One seen.

- 31. *Aegialitis wilsonia* (Ord.).** Wilson's Plover.

Breeding abundantly along the bay-side.

- 32. *Arenaria interpres* (Linn.).** Turnstone.

My remarks on *Charadrius squatarola* apply with equal force to the Turnstone.

- 33. *Colinus virginianus texanus* (Lawr.).** Texan Bob-white.

Abundant.

- *34. *Meleagris gallopavo* Linn.** Wild Turkey.

Although I spent some time in the vicinity where Mr. Chapman secured his specimens, and visited well known turkey-roosts at night, I was unable to secure any of these birds.

- 35. *Zenaidura macroura* (Linn.).** Mourning Dove.

Nowhere in the United States have I found this bird more abundant than in Texas. A dozen to twenty nests could be found in nearly every acre of chaparral, and frequently two nests would be found in the same mesquite bush.

- *36. *Cathartes aura* (Linn.).** Turkey Vulture.

Abundant.

- *37. *Catharista atrata* (Bartr.).** Black Vulture.

Saw two.

- *38. *Parabuteo unicinctus harrisi* (Aud.).** Harris' Hawk.

The commonest species.

- *39. *Buteo lineatus* (Gmel.).** Red-shouldered Hawk.

Found up the Nueces River.

- *40. *Falco sparverius* Linn.** Sparrow Hawk.

Frequently seen.

- *41. *Polyborus cheriway* (Jacq.).** Audubon's Caracara.

Comparatively abundant.

- *42. *Pandion haliaetus carolinensis* (Gmel.). American Osprey.

Seen on two occasions near Nueces Bay.

- *43. *Syrnium nebulosum* (Forst.). Barred Owl.

On the night of my encampment on the upper Nueces, the peculiar hooting of this owl indicated its abundance.

44. *Megascops asio meallii* (Cass.). Texan Screech Owl.

Wherever the timber, either in the form of upland "Mottes" or riverside woodlands, was sufficiently heavy to afford a retreat, this owl was well represented.

45. *Crotophaga sulcirostris* Swains. Groove-billed Ani.

A specimen was collected about ten miles west of Corpus by Mr. Priour just previous to my visit. Another was seen on the second of June near the same spot.

46. *Geococcyx californianus* (Less.). Road Runner.

Breeding and common everywhere.

47. *Coccyzus americanus* (Linn.). Yellow-billed Cuckoo.

Frequently found and breeding.

- *48. *Ceryle alcyon* (Linn.). Kingfisher.

Saw two.

49. *Dryobates scalaris bairdi* (Sel.). Baird's Woodpecker.

Abundant but shy.

50. *Melanerpes aurifrons* (Wagl.). Golden-fronted Woodpecker.

About Corpus Christi this bird is as abundant as the Flicker is in the east, and invariably builds in telegraph poles and high fence posts. In less settled parts they are rare.

51. *Antrostomus carolinensis* (Gmel.). Chuck Will's Widow.

A specimen was secured near Corpus Christi in April by Mr. Priour. I heard none during my stay.

52. *Nyctidromus albicollis merrilli* (Senn.). Parauque.

This Goatsucker was frequently heard throughout my stay, both at Corpus Christi and around San Patricio. Its monotonous, whistling "wee-ooo," is generally uttered while the bird is perched on a fence, though I have often traced it to the ground, both in the narrow cow-paths of the chaparral and in open glades. A nest, containing a single egg, nearly hatched, was found near San Patricio, on the first of June.

53. *Chordeiles virginianus henryi* (Cass.). Western Nighthawk.

All the Nighthawks shot around Corpus Christi appear to belong to this race. *C. texensis* finds its southwestern breeding limit about midway between Corpus Christi and San Antonio; during the migrations, however, *texensis* has been noticed by Priour a few miles west of Corpus Christi.

***54. *Chaetura pelagica* (Linn.).** Chimney Swift.

This species is another unaccountable omission from Beckham's list. Though not common, quite a number were seen.

***55. *Trochilus colubris* Linn.** Ruby-throated Humming-bird.

Three individuals seen.

56. *Milvulus forficatus* (Gmel.). Scissor-tail Flycatcher.

Very common but wary. These elegant birds moult in the summer, and by the first of June their bright colors are faded and the tail-feathers threadbare. Out of a dozen specimens obtained, there were no exceptions to this rule, though the breeding season had just begun. The worn appearance of the tail is largely due to the necessary switching of it in the devious pursuit of insect prey; but it may also be attributed to the fact that the birds are somewhat terrestrial in their habits, as I have observed them for hours gleaning insects in the open pastures and salt flats near Corpus Christi, alighting without hesitation in the short grass to secure or devour their food. I have also observed the males mounting and gyrating together in the air after the manner of Kingbirds.

57. *Tyrannus tyrannus* (Linn.). Kingbird.

The only specimen of this species seen, was obtained near Corpus Christi on May 30th.

58. *Myiarchus crinitus* (Linn.). Crested Flycatcher.

Two were noted, one of which was shot near the Nueces River bottoms, June sixth. Another specimen, shot at Corpus Christi April 10th, was obtained from Mr. Priour.¹

¹ The latter specimen has a distinct dark band on the inner margin of the quill of the outer tail feathers, about equal in width to the entire outer web. Eastern birds frequently have a narrow band on the outer webs of the rectrices but I have never seen one quite so clearly marked as in the Texan example. The color of the under surface of the body in this specimen is, moreover, very dark, exceeding the average of eastern specimens in this respect. In connection with the Texan species of *Myiarchus*, a specimen of *M. cinerascens* in the Academy Collection, from Laredo ("Colln. Dr. H. B. Butcher, Aug. 17, 1866. ♀") is of interest as being the most eastern record of this species that I have seen, except in Prof. Cooke's "Bird Migration in the Mississippi Valley" where it is said on the authority of H. F. Peters, to be a summer resident at Bonham, fifty miles north-east of Dallas.—W. S.

59. *Myiarchus mexicanus* (Kaup.). Mexican Crested Flycatcher.

A pair of these birds had a nest and eggs near Priour's house.

60. *Contopus borealis* (Swains.). Olive-sided Flycatcher.

Two specimens were taken and about half a dozen seen. They were noticed as late as June 3rd.

61. *Contopus virens* (Linn.). Wood Pewee.

Common, and judging from its actions, a frequent breeder about Corpus Christi.

62. *Pyrocephalus rubineus mexicanus* (Scl.). Vermilion Flycatcher.

The eastern limit for the occurrence of this species lies about twenty miles west of Corpus Christi, in a country to all appearances identical with that nearer the town. The Texan Cardinal (*Pyrrhuloxia*), a bird of very different habits, confines itself during the breeding season to exactly the same limits, although it may be found during the winter and up to the first of May, about Corpus Christi.¹

63. *Otocoris alpestris giraudi* Hensh. Texan Horned Lark.

Breeds commonly on the Corpus Christi flats. The song of this species is very deceptive often seeming to come from the ground before you, while in fact the bird is high overhead.

64. *Molothus ater obscurus* (Gmel.). Dwarf Cowbird.

Numerous everywhere.

65. *Agelaius phœniceus* (Linn.). Red-wing Blackbird.

Breeding abundantly in the marshes around Nueces Bay. Owing to the scarcity of water on the uplands this bird was rarely seen there.

66. *Sturnella magna* (Linn.). Meadow Lark.

Just as I was leaving Corpus Christi, a lark was brought to me in the flesh, which undoubtedly belonged to the eastern race. I was unfor-

¹ As Mr. Chapman has remarked, the Texas and Arizona specimens of *Pyrocephalus* are smaller than those from farther south and have smaller bills. In point of color there is considerable difference, as is shown in a good series of specimens. I have already called attention (Proc. Acad. Nat. Sci. Phil. 1890, p. 208) to the rosy or pinkish-red hue of Yucatan examples, as contrasted with the vermilion shade of those from other localities. Indeed, this difference seemed so constant that I was inclined to separate the former as a subspecies; an examination, however, of the material of the U. S. National Museum, which was kindly loaned to me through Mr. Robert Ridgway, shows that this idea was not supported. In the series of twenty-nine Mexican and Central American specimens now before me, four Yucatan specimens are pink, one is vermilion and one intermediate, while there is a bright pink specimen from Jalapa. Two Honduras birds show patches of orange-yellow on the breast.—W. S.

tunately unable to preserve it. I saw only three larks during my stay. They frequented the meadows of the bay and were excessively wild. I feel sure they were not *neglecta*, having on several occasions heard their song which had the unmistakable quality of *magna*. In this respect my experience corroborates that of Hancock whom Beckham thinks mistaken. The true state of affairs is probably that during winter the races intermingle, *neglecta* greatly predominating. Before the first of May *neglecta* decamps into the interior to breed and a few of the true *magna* remain.

67. *Icterus spurius* (Linn.). Orchard Oriole.

A few pairs found breeding.

68. *Icterus galbula* (Linn.). Baltimore Oriole.

None seen. A specimen, shot a few days before my visit, is in the collection.

69. *Icterus bullocki* (Swains.). Bullock's Oriole.

Several observed. Nest with young, June 2nd.

***70. *Quiscalus quiscula æneus* (Ridgw.).** Bronzed Grackle.

I observed this species industriously feeding its young along the San Antonio River. None seen nor heard of at Corpus Christi.

71. *Quiscalus macrourus* Swains. Great-tailed Grackle.

While very numerous at Corpus Christi, this Grackle attained a far greater abundance in the hack-berry mottes along the road to San Patricio, about fifteen miles west of Corpus Christi.

72. *Ammodramus maritimus sennetti* Allen. Texan Seaside Finch.

Found it common on the Nueces Bay flats.

73. *Chondestes grammacus* (Say). Lark Sparrow.

Breeding commonly. Fresh eggs and full-fledged young procured the same day, May 30th.

74. *Peucaea cassini* (Woodh.). Cassin's Finch.

Several found breeding in open pasture a mile from Corpus Christi.

***75. *Melospiza fasciata* (Gmel.).** Song Sparrow.

A few of these were seen but none secured.

76. *Embernagra rufivirgata* Lawr. Texas Sparrow.

As Mr. Chapman remarks, this species does not seem to have been recorded from north of the Rio Grande prior to his visit to Corpus Christi, and I think it most probable that twelve years ago it was

not a member of the fauna of this region. That it has become so since is easily accounted for by the facts already stated regarding the physical changes that have overspread the country in recent times. I found the Texas Sparrow thoroughly at home in the Corpus Christi and San Patricio chaparral, and secured their nests and fully fledged young.¹

77. *Cardinalis cardinalis canicaudus* Chapm. Gray-tailed Cardinal.

I secured a series of fourteen specimens of this newly described race, including seven females and five males.²

78. *Pyrrhuloxia sinuata* Bonap. Texan Cardinal.

Though common in the vicinity of the town during winter and early spring this species retires twenty miles westward to breed.

79. *Passerina ciris* (Linn.). Painted Bunting.

Breeding abundantly everywhere.

80. *Piranga rubra* (Linn.). Summer Tanager.

Not found at Corpus Christi but several were observed in the heavy chaparral twenty miles west of it; also seen along the upper Nueces.

81. *Progne subis (Linn.). Purple Martin.

Common in the vicinity of towns.

82. *Petrochelidon lunifrons* (Say). Cliff Swallow.

Plentiful, in flocks.

83. *Chelidon erythrogaster (Bodd.). Barn Swallow.

Common. Breeding.

84. *Clivicola riparia* (Linn.). Bank Swallow.

Very abundant.

85. *Stelgidopteryx serripennis (Aud.). Rough-winged Swallow.

Observed a few with the preceding species.

86. *Lanius ludovicianus excubitorides (Swains.). White-rumped Shrike.

Scarce.

¹ The young have the feathers of the head and interscapulum centered with black and bordered with ochraceous. Beneath, the breast and flanks are tinged with olivaceous and are marked with dark longitudinal markings; belly yellowish-white.—W. S.

² Two young females have the bills entirely black, as is the tendency in the young in this genus. There is a female specimen in the Academy's Collection which agrees exactly with Mr. Rhoads' birds and which was collected by Captain McCown at "Ringgold Barracks, Texas" in 1857.—W. S.

87. *Vireo olivaceus* (Linn.). Red-eyed Vireo.

A few were observed on the upper Nueces where they breed.

88. *Vireo noveboracensis* (Gmel.). White-eyed Vireo.

Common around Corpus Christi and elsewhere.

89. *Vireo bellii* (Aud.). Bell's Vireo.

Numerous, west of San Patricio where I found it breeding.

90. *Dendroica aestiva* (Gmel.). Yellow Warbler.

The only specimen observed was shot near Corpus Christi.

91. *Seiurus noveboracensis notabilis* (Grinn.). Grinnell's Water Thrush.

One specimen was procured.

92. *Geothlypis trichas* (Linn.). Maryland Yellow-throat.

A female shot was the only one certainly seen. Priour affirms that it breeds at the mouth of Nueces Bay.

93. *Icteria virens* (Linn.). Yellow-breasted Chat.

Only one of these birds, a singing male, was found. Merrill and Sennett found it abundant at Fort Brown, a fact which Beckham ignores. Mr. Priour thinks it a very rare summer resident around Corpus Christi.¹

94. *Mimus polyglottos* (Linn.). Mockingbird.

Abundant breeder.

- *95. *Harporhynchus longirostris sennetti* Ridgw. Texas Thrasher.

Several of these birds were observed and were evidently breeding in the impenetrable chaparral near the town. I was unable to secure any.

96. *Thryothorus ludovicianus* (Lath.). Carolina Wren.

Only observed on the upper Nueces, where they are frequent and had fledged young.

97. *Thryothorus bewickii bairdi* (Salv. & Godm.). Baird's Wren.

Very numerous and prolific everywhere.

98. *Parus atricristatus* Cass. Black-crested Titmouse.

Several seen on the Nueces in large timber.

99. *Auriparus flaviceps* (Sund.). Verdin.

One specimen of the Verdin was secured. Although many of their nests were found, the breeding season was over and the old and young seemed to have left the country.

¹ This specimen seems intermediate in character, being quite as gray as the average *longicauda* but is little different in size from typical *virens*.—W. S.

100. *Polioptila cærulea* (Linn.). Blue-gray Gnatcatcher.

Only one seen.

The following, for various reasons appended, should be mentioned in this connection :—

Dendrocygna autumnalis (Linn.). Black-bellied Tree-duck.

Dendrocygna fulva (Gmel.). Fulvous Tree-duck.

Both these are mentioned in Dresser's and Merrill's lists, but not from any locality north of the Rio Grande. Mr. Priour says that both breed on the Nueces marshes, but produced no conclusive evidence.

Columba flavirostris Wagl. Red-billed Pigeon.

Another bird which Priour assures me straggles as far north as Corpus Christi in early spring.

Columbigallina passerina pallescens (Baird).

Mr. Priour says this dove breeds in the town.

Strix pratineola Bonap. Barn Owl.

I was shown several burrows in the face of a steep bank rising from Nueces Bay where this owl is said to breed regularly.

Speotyto cunicularia hypogæa (Bonap.). Burrowing Owl.

The complete disappearance of this common and characteristic bird from the region of Corpus Christi is directly due to the usurpation of their prairie domain by the now ubiquitous chaparral.

Ceryle cabanisi (Tschudi.). Texan Kingfisher.

This diminutive species, never common, seems to be growing rarer yearly. I made especial search for it on the Nueces, in a locality where it previously occurred, but without success.

"*Ammodramus maritimus peninsulæ*?" Allen. Scott's Seaside-sparrow.

Mr. Chapman's remarks on this race, and the deductions made therefrom, may be somewhat simplified by the fact that I did not find any of the "black" Seaside Finches at the spot indicated, nor anywhere else in that vicinity, though special search was made. I am inclined to think Mr. Priour mistaken in his belief that these dark birds remain during the summer.

ARIZONA.

As already observed, my stay in southern Arizona covered the period between June 10th and July 12th, the first eight days being spent in the immediate vicinity of Tucson, the next twelve at Oracle,

in the live-oak belt on the southern slopes of the Santa Catalina Mountains, forty miles north of Tucson, and part of the remaining ten days in the pine-clad region of their summits, which rise some eight thousand feet above the Tucson level and five thousand above the elevation at Oracle. The country covered by my rambles included the central part of a larger area in Pima County, explored by Mr. W. E. D. Scott during a long residence in the Santa Catalinas. For a more thorough understanding of the region in question, and an excellent description of the natural characteristics of this part of Arizona, I cannot do better than refer to Mr. Scott's introductory paper "On the Avifauna of Pinal County," etc., published in the third volume of the "Auk."

As in the previous list, those in the subjoined, indicated by an asterisk, are not represented in the collection, no specimens having been secured.

*1. *Anas strepera* Linn. Gadwall.

While exploring the upper waters of the Santa Clara, four miles from Tucson, I found a duck feeding on the river and shot at it but failed to kill it. Shortly after it was secured by another gunner who was shooting in the vicinity and I was enabled to positively identify it. From Mr. Scott's account, it seems to be a rarity, even as a visitant, and this makes its occurrence in summer all the more noteworthy.

*2. *Ardea herodias* Linn. Great Blue Heron.

Rare.

*3. *Ardea virescens* Linn. Green Heron.

A few noted in the valley.

*4. *Gallinula galeata* (Licht.). Florida Gallinule.

A pair seen on Silver Lake, near Tucson.

*5. *Fulica americana* Gmel. American Coot.

Also seen on the Santa Clara River.

*6. *Aegialitis vocifera* (Linn.). Kildeer.

Not uncommon in the Santa Clara Valley.

7. *Callipepla squamata* (Vig.). Scaled Partridge.

Wherever found, the Scaled Quail was associated with Gambel's, both on the mesas and in the lower edge of the oak-belts. One was shot near the hotel at Oracle, but they rarely attain such an altitude, even in the breeding season, and are probably induced to wander away from their usual haunts in search of water which is

very scarce in June. Around Tucson I saw none of this species and not until I reached the lower mesa slopes did any appear. At no time was I sure of finding them until fairly below the oak belt. In numbers they ranked far below *C. gambeli*, not one in ten of all the partridges seen being *squamata*.

***8. *Callipepla gambeli* (Nutt.).** Gambel's Partridge.

I did not meet with any flocks of this species in the valley. They are very abundant in the oak belt, ranging as high as the lower pines and at the time of my visit were leading about their families of young, which varied in size from the newly hatched chick to half-grown birds. The male bird continues its harsh cry after the young have left the nest, and for sufficient reasons, too lengthy to be presented in this paper, I am convinced they are polygamous, whereas *C. squamata* is not.

***9. *Cyrtonyx montezumæ* (Vig.).** Massena Partridge.

Three "Fool Quails" were noticed on the higher slopes of the Catalinas, one of them at an elevation of 7000 feet.

The habits of the Massena Partridges are very dissimilar to those of the genus *Callipepla*, reminding one strongly of our eastern Bobwhite in their aptness for quick concealment and sudden flight.

***10. *Meleagris gallopavo mexicana* (Gould).** Mexican Turkey.

Owing to a disastrous fire in the Mt. Lemon region of the Catalinas, this bird, once common, has wholly abandoned that part of the country. I did not see or hear of it elsewhere.

11. *Columba fasciata* Say. Band-tailed Pigeon.

Found well dispersed throughout the oak and pine belts and breeding in the latter. All nests examined contained either a single young or egg.

***12. *Columbigallina passerina pallescens* (Baird).** Mexican Ground Dove.

A few seen in the Tucson suburbs.

***13. *Pseudogryphus californianus* (Shaw).** California Vulture.

I was informed by Mr. Jack Alwinkle, a ranchman at Oracle, that he shot a "Condor" several years ago, near the summit of Mount Lemon. It was perched on a huge rock some distance from their camp, was shot to test the range of his rifle, fell dead, and, after a careless examination, was thrown away. Besides these facts, and his assertion that it was "twice as large as a buzzard," my

informant added that it was the only one he had seen since leaving California, where, as a cowboy, he had spent several years.

This statement of an excellent hunter and reliable observer should entitle this species to a place in the avifauna of Arizona.

*14. *Cathartes aura* (Linn.). Turkey Vulture.

Fairly common up to 4000 ft.

15. *Accipiter cooperi* (Bonap.). Cooper's Hawk.

Several couples found breeding and young secured.

16. *Buteo borealis calurus* (Cass.). Western Red-tail.

Common. A pair found as high as 8000 ft.

17. *Buteo abbreviatus* Caban. Zone-tailed Hawk.

Some half-dozen noted, one at 9000 ft. elevation.

A nest with two young was found in a cañon near Oracle in a juniper.

*18. *Buteo swainsoni* Bonap. Swainson's Hawk.

I came suddenly upon a pair of these Hawks sitting on the bank, at a bend in the Santa Clara, but they escaped before I could secure them.

*19. *Aquila chrysaetos* (Linn.). Golden Eagle.

A pair were observed sitting on the crags which overlook the Cañon DeOro, above the trail to Mt. Lemon.

20. *Falco sparverius* Linn. Sparrow Hawk.

Abundant everywhere.

*21. *Polyborus cheriway* (Jacq.). Audubon's Caracara.

Two were seen near Tucson and the species was occasionally noted near Oracle.

*22. *Syrnium occidentale* Xantus. Spotted Owl.

On the opposite side of the Santa Clara valley at a point where there rises a rocky hill whose precipitous sides front the city of Tuscon, I found several of these owls. One pair was noticed perching on some large boulders and though they were in the full glare of the sun they did not appear at all disconcerted. From the appearance of the surroundings it seemed that these boulders were their regular stands, and this was rendered more likely as a nest from which a brood had evidently been raised was afterwards found in the recesses of a narrow ledge below where they had been sitting,

- 23. *Megascops asio trichopsis*** (Wagl.). Mexican Screech Owl.

A young bird of this variety about two-thirds grown, was found in the chaparral near Tucson.

- 24. *Bubo virginianus subarcticus*** (Hoy). Western Horned Owl.

Frequently heard but rarely seen. They are rare in the lowlands.

- *25. *Micropallas whitneyi*** (Cooper). Elf Owl.

Though said to be numerous, none were met with.

- 26. *Geococcyx californianus*** (Less.). Road Runner.

Found more abundantly near the oak-belt than in the vicinity of Tucson. I observed them also at a considerable distance above Oracle.

- *27. *Ceryle alcyon*** (Linn.). Kingfisher.

Very few noted around Tucson.

- 28. *Dryobates villosus hyloscopus*** (Cab.). Cabanis' Woodpecker.

Found sparingly at 8000 feet elevation among the pines.

- 29. *Dryobates scalaris bairdi*** (Scl.). Baird's Woodpecker.

Common in the oak-belt and decreasing as you descend toward the plain.

- 30. *Melanerpes formicivorus bairdi*** Ridgw. Californian Woodpecker.

Found breeding from the oak-belt upwards, to 9000 feet elevation.

- 31. *Melanerpes uropygialis*** (Baird). Gila Woodpecker.

Co-extensive with the giant cacti.

- 32. *Colaptes cafer*** (Gmel.). Red-shafted Flicker.

Only found in the pine woods and rare even there.

- 33. *Colaptes chrysoides*** (Malh.). Gilded Flicker.

Tolerably numerous in the valley, but none seen elsewhere.

- *34. *Phalænoptilus nuttalli*** (Aud.). Poorwill.

Abundant, and breeding in the oak belt.

- 35. *Chordeiles texensis*** Lawr. Texan Nighthawk.

I found these birds abundant in the immediate vicinity of Tucson. They frequented the mesquite in preference to more open tracts and spent much of their time, even during the mid-day hours, in dashing about among the chaparral bushes for food, invariably lighting when tired in the shade of a bush or cactus. The song of this bird

has a wonderful resemblance to the distant hollow, rolling "whooooo" of *Megascops*. It is uttered by both sexes and whether they be on the ground or on the wing, the quality of these notes is so ventriloquial that I actually stumbled over three of the birds without taking notice of them, in the search for a supposed owl that I imagined I heard in a distant tree. On no occasion did they make any other sound which would show their intimate relationship to our *C. virginianus*.

*36. *Micropus melanoleucus* (Baird). White-throated Swift.

A pair of these birds were certainly breeding in the cliffs where I found *Syrnium occidentale*, though I could not, because of the nature of the ground, make thorough enough search to discover the whereabouts of their nest.

I saw frequent companies of these birds in various places along the Santa Clara Valley, skimming the waters of Silver Lake and again sailing and twittering high in air, reminding one strongly, in both situations, of the Chimney Swift.

The day of my ascent of Mount Lemon, several of this species were seen coursing about the summit in company with Violet-green Swallows.

37. *Eugenes fulgens* (Swains.). Rivoli Humming-bird.

Soon after my arrival in the Catalina pine-belt I noted a large hummer, feeding among the yellow columbines of a little canon near the camp. I did not see it again until the day of my departure from the mountains, when I found it in the same place and upon shooting it found it to be an adult male of the above species. This is probably the most northerly record for the Rivoli Humming-bird and considering the time of its capture it seems quite likely that it was breeding in the vicinity.

38. *Trochilus alexandri* Bourc. & Muls. Black-chinned Humming-bird.

Very abundant in the Catalinas. One shot at Tucson and one at Oracle. The love antics of this bird are highly entertaining. Selecting an open space among the trees in the immediate vicinity of its nest the male starts from his perch among the willows uttering a shrill, continuous trilling note that bears a strange proportion in its tone and quickness to the varying rapidity of flight. Having reached the farthest limits of its chosen pleasure ground, at an elevation corresponding to that of the nearest tree-tops, it suddenly describes a headlong, parabolic curve, just grazing the ground and

rising with a diminishing cadence of voice and wings to the tree-tops on the opposite side where it repeats the manoeuvre, regaining its former position. These evolutions are kept up in rapid succession, sometimes as many as thirty flights being taken with scarcely a rest. The geometric exactness of the curves which are traced by the bird is astonishing.

The nests of the Black-chinned Hummer are easily found, but my experience agrees with that of Mr. Scott regarding the scarcity of nests of the other humming-birds which inhabit the Catalina Mountains.

39. *Trochilus platycercus* Swains. Broad-tailed Humming-bird.

A common bird, associating with the former. I found a pair building in an oak tree beside a dry water-course but did not discover the nest until I had killed the female, whose body contained a well-developed egg.

40. *Tyrannus verticalis* Say. Arkansas Kingbird.

Found breeding from the plains to within a few hundred feet of the pines.

41. *Tyrannus vociferans* Swains. Cassin's Kingbird.

A few seen and two captured in the oaks near Oracle.

42. *Myiarchus mexicanus magister* Ridgw. Arizona Crested Flycatcher.

This bird was not common. It was not seen at an elevation of a thousand feet above Tucson.

43. *Myiarchus cinerascens* Lawr. Ash-throated Flycatcher.

Found well distributed and plentiful all the way from Tucson to the lower regions of the pine belt.

44. *Sayornis saya* (Bonap.). Say's Phoebe.

As uniformly distributed as the former though more common in the oak woods.

45. *Sayornis nigricans* (Swains.) Black Phoebe.

Seen only at Tucson and not common.

46. *Contopus pertinax* Cab. Coues' Flycatcher.

Only noticed in the pine belt where they were the most abundant Flycatcher.

47. *Contopus richardsonii* (Swains.). Western Wood Pewee.

Seen only in the pine but not common.

48. *Empidonax difficilis* Baird. Western Flycatcher.

Two nests with young and several mated pairs were observed in the Catalina pines.

49. *Empidonax pusillus* (Swains.). Little Flycatcher.

A pair were taken in a willow clump on the banks of the Santa Clara. They evidently had a nest but it was not found.

50. *Pyrocephalus rubineus mexicanus* (Sel.). Vermilion Flycatcher.

The greatest altitude at which I secured this Flycatcher was that of Oracle, nearly 6000 feet. They were increasingly abundant as you neared the plains.

51. *Otocoris alpestris adusta* Dwight. Scorched Horned Lark.

Horned Larks were not abundant, though I frequently observed small companies on the higher plains and mesas between Tucson and the oak belt. I succeeded in securing but one, a young bird, fully fledged.

52. *Cyanocitta stelleri macrolopha* (Baird). Long-crested Jay.

This species was confined strictly to the pine belt during my stay. Its scolding is a peculiar combination of hiss, snarl and sneer.

53. *Aphelocoma woodhousei* (Baird). Woodhouse's Jay.

Only three of these wary birds were noted, all within a mile of Oracle, in the oak belt.

54. *Aphelocoma sieberi arizonæ* Ridgw. Arizona Jay.

The strict coincidence of the range of this abundant species with the limits of the oak belt is as remarkable as that of the Long-crested Jay with the pines.

55. *Corvus corax sinuatus* (Wagl.). American Raven.

Several Ravens visited the water tank and corral at Oracle daily, and I occasionally saw them soaring among the foothills.

56. *Corvus cryptoleucus* Couch. White-necked Raven.

The above remarks equally apply to this species, with the difference that the former generally betook themselves to higher altitudes while the latter departed down the nearest cañon toward the San Pedro.

57. *Molothrus ater obscurus* (Gmel.). Dwarf Cowbird.

Numerous in the valley and occasional around Oracle.

58. *Agelaius phoeniceus sonoriensis* Ridgw. Sonoran Red-wing?

These Blackbirds were fairly numerous along the water-courses of the Santa Clara.¹

59. *Icterus parisorum* Bonap. Scott's Oriole.

Frequently found leading their young among the oaks around Oracle and 1000 feet higher. A pair were also seen in the mesquite bordering the oak belt.

60. *Icterus cucullatus nelsoni* Ridgw. Arizona Hooded Oriole.

While the range of this species extends from Tucson nearly up to the lower edge of Catalina pines it was nowhere so abundant as in the oak belt.

61. *Icterus bullocki* (Swains.). Bullock's Oriole.

None seen in the Catalina region but abundant in the heavy chaparral of the Santa Clara Valley, where they breed. By imitating the cry of a young bird and concealing myself in the bushes I never failed to bring a crowd of these usually timid birds within easy range.

62. *Carpodacus mexicanus frontalis* (Say). House Finch.

Very abundant to near the lower pine limit; males singing, and young in every stage of growth. Some of their call notes, and their actions and habits in general, are very suggestive of *Passer domesticus*.

63. *Spinus psaltria arizonæ* (Coues). Arizona Goldfinch.

Several rather large flocks were seen about Tucson and a small one in the oak belt; two specimens were secured.

64. *Chondestes grammacus strigatus* (Swains.). Western Lark Sparrow.

Found rather sparingly in the oak belt but nowhere else.

65. *Junco cinereus palliatus* Ridgw. Arizona Junco.

Breeding abundantly in the pine belt.

66. *Amphispiza bilineata* (Cass.). Black-throated Sparrow.

Ranging commonly, and breeding from Tucson to 1000 feet above Oracle.

¹ Mr. Scott makes no allusion to this Blackbird in his paper, the only species of *Agelaius* mentioned being *A. gubernator* (Auk 1887, p. 22). Only one specimen, an adult male is contained in Mr. Rhoads' collection so that it is difficult to decide to which race it should be referred. The measurements seem to be nearer to true *phoeniceus* rather than to *sonoriensis*, the wing being 4.80 in.—W. S.

67. *Peucaea arizonæ* Ridgw. Arizona Sparrow.

This species frequented the thick bunches of bear-grass just below the lower edge of the oak belt; they were breeding and were very shy. Their habits are eminently terrestrial, and at no time did they leave the ground save to perch on the lowly bear-grass stems and utter a rather sweet song. Four individuals were seen, all within a hundred yards of each other. Three were secured. Nowhere else did I see or hear this species, though a most careful search was made in the neighborhood. It is not mentioned in Mr. Scott's paper.

68. *Peucaea ruficeps boucardi* (Sel.). Boucard's Sparrow.

Sparingly distributed throughout the oak belt and lowest portion of the pine belt.

69. *Melospiza fasciata fallax* (Baird). Desert Song Sparrow.

Found breeding only in the near vicinity of water in the Santa Clara Valley.

70. *Pipilo maculatus megalonyx* (Baird). Spurred Towhee.

Common in the pines and ranging up to the mountain tops.

71. *Pipilo fuscus mesoleucus* (Baird). Canon Towhee.

Abundant in the forest-clad areas as far up as the oaks reach into the pines. The resemblance of this bird's song to certain notes in the Cardinal's repertory is remarkable.

***72. *Pipilo aberti* Baird.** Abert's Towhee.

This species very sparingly replaces the preceding in the neighborhood of Tucson.

73. *Cardinalis cardinalis superbus* Ridgw. Arizona Cardinal.

One pair of these were secured at Tucson. No other seen.

74. *Pyrrhuloxia sinuata beckhami* Ridgw. Arizona Pyrrhuloxia.

A few were seen near Tucson in the chaparral of the Santa Clara Valley.

75. *Habia melanocephala* (Swains.). Black-headed Grosbeak.

Found breeding abundantly in the Catalina pines up to very high altitudes.

76. *Guiraca caerulea eurhyncha* Coues. Western Blue Grosbeak.

In the valley of the Santa Clara about Tucson this Grosbeak was daily seen. I shot a male and female which were carrying building material into a willow thicket on the river bank.

*77. *Passerina amoena* (Say). Lazuli Finch.

One seen near the railroad station, Tucson.

78. *Piranga ludoviciana* (Wils.). Louisiana Tanager.

Fairly common in the Catalina pines.

79. *Piranga hepatica* Swains. Hepatic Tanager.

In the same locality as the former but less common. Also found in the upper oak belt.

80. *Piranga rubra cooperi* Ridgw. Cooper's Tanager.

Ranges between the central portion of the oak belt and the Santa Clara Valley but is not common.

81. *Progne subis hesperia* Brewst. Western Martin?

Abundant in the lowland regions, particularly about Silver Lake.¹

*82. *Chelidon erythrogaster* (Bodd.). Barn Swallow.

Observed on the foothills but not in the valley.

83. *Tachycineta thalassina* (Swains.). Violet Green Sparrow.

Abundant on the Catalina mountain tops where it breeds in holes like its eastern congener, *T. bicolor*.

*34. *Clivicola riparia* (Linn.). Bank Swallow.

85. *Stelgidopteryx serripennis* (Aud.). Rough-winged Swallow.

These two species were found associated along the higher banks of the Santa Clara in the Tucson suburbs, the latter being the more numerous.

86. *Phainopepla nitens* (Swains.). Phainopepla.

Uniformly distributed throughout all the region traversed, up to 6000 feet.

87. *Lanius ludovicianus excubitorides* (Swains.). White-rumped Shrike.

Tolerably abundant from the lowlands upward as far as Oracle.

88. *Vireo gilvus* (Vieill.). Warbling Vireo.

A pair of these birds were found nesting in a maple on Mt. Lemon at 8000 feet.

89. *Vireo solitarius plumbeus* (Coues). Plumbeous Vireo.

In the pine belt of the Catalinas I found the Plumbeous Vireo tolerably abundant. In habits it reminded me of *V. solitarius*,

¹ Only one specimen, a young male, was secured by Mr. Rhoads and it is impossible to determine its affinities with certainty, though it seems to approach this race.—W. S.

especially in its fondness for the tops of the highest evergreens. The song is noticeably different from that of our eastern bird, despite a resemblance.

*90. *Vireo bellii pusillus* (Coues). Least Vireo.

The Least Vireo was found sparingly in the chaparral of vacant lots around Tucson and in similar places in the Santa Clara Valley. Independently of the taxonomic differences which may warrant Mr. Ridgway's claim to full specific rank for this Vireo, there is nothing in its song or habits to support this position.

91. *Vireo vicinior* Coues. Gray Vireo.

Frequent in the oak-woods and nowhere else.

92. *Helminthophila luciae* (Cooper). Lucy's Warbler.

Abundant from Tucson upward to a few hundred feet above Oracle.

93. *Helminthophila virginiae* (Baird). Virginia Warbler.

Little companies of this species frequented the deciduous trees in the lower edge of the Pine-belt, reminding me in their habits of the Bush Tits and Titmice with which they associate.

*94. *Dendroica olivacea* (Giraud). Olive Warbler.

I saw one of these birds in the mountains but failed to secure it. It was in full view and its peculiar habit of perching on the large pine branches near the trunk, its deliberate movements and characteristic markings, examined with a glass at short range, convince me of the correctness of my identification.

95. *Dendroica aestiva sonorana* Brewst. Sonora Yellow Warbler.

Plentiful around Tucson in the valley but seen nowhere else.¹

96. *Dendroica auduboni* (Townsend). Audubon's Warbler.

Not rare in the Catalina among the pines.

97. *Dendroica graciae* Coues. Grace's Warbler.

Abundant in the pines.

98. *Dendroica nigrescens* (Townsend). Black-throated Gray Warbler.

Abundant in the pines.

¹ A young bird of this race in the collection is silky white beneath, with the lores and sides of the throat light yellow; above gray, the lesser wing coverts and rump yellow-olive, greater wing coverts edged with buff, wings and tail as in adults. The specimen was evidently moulting, as yellow pin feathers are to be seen here and there on the breast.—W. S.

99. *Geothlypis trichas occidentalis* Brewst. Western Yellow-throat.

Sparingly found in the immediate vicinity of running water around Tucson.

100. *Icteria virens longicauda* Lawr. Long-tailed Chat.

Abundant in the valley.

101. *Setophaga picta* (Swains.). Painted Redstart.

This exquisite species was common in the Catalina pine woods and the upper edge of the oak belt.

102. *Cardellina rubrifrons* (Giraud). Red-faced Warbler.

The above remarks apply equally to this species, though its range does not extend so far up as that of the Redstart.

103. *Mimus polyglottos* Linn. Mockingbird.

Without exception the most abundant bird in the country, ranging up to 5000 or 6000 feet.

104. *Harporhynchus curvirostris palmeri* Ridgw. Palmer's Thrasher.

To the best of my recollection Palmer's Thrasher was the commonest species of the genus, ranging somewhat lower than the following.

105. *Harporhynchus bendirei* Coues. Bendire's Thrasher.

Found abundantly from the plains up to 4000 feet.

106. *Harporhynchus crissalis* (Henry). Crissal Thrasher.

Equal in abundance and with a similar range to *H. bendirei*.

107. *Campylorhynchus brunneicapillus* (Lafr.). Cactus Wren.

Abounding in all dry situations between Tucson and Oracle.

108. *Salpinctes obsoletus* (Say). Rock Wren.

Tolerably common in rocky situations within the oak belt. A pair observed on top of a spur of Mt. Lemon, 8000 feet high.

109. *Catherpes mexicanus punctulatus* Ridgw. Dotted Cañon Wren.

The first of these enchanting songsters was heard among the rocks of a hill near Tucson, around which flowed the waters of the Santa Clara. They were rare in this locality. I next discovered them in the boulder-covered foot-hills about Oracle and found them breeding in the Santa Catalinas, one pair having located in a pile of rocks several hundred feet above our camp.

110. *Thryothorus bewickii bairdi* (Salv. & Godm.). Baird's Wren.

Throughout the oak belt and for some distance in the pines this species was very common. I did not find any at a lower elevation.

111. *Troglodytes aedon aztecus* Baird. Western House Wren.

Very common in the pine clad areas of the Catalinas where its range overlaps that of Baird's Wren.

112. *Certhia familiaris mexicana* (Glog.). Mexican Creeper.

A few were noted in the higher pines on Mt. Lemon 7000 to 8000 feet.

113. *Sitta carolinensis aculeata* (Cass.). Slender-billed Nuthatch.

Very common throughout the pines to the highest mountain tops.

114. *Sitta pygmæa* Vig. Pygmy Nuthatch.

Co-extensive with preceding species and even more abundant.

115. *Parus wollweberi* (Bonap.). Bridled Titmouse.

Abundant in the oak-belt and lower edge of pine belt.

116. *Parus gambeli* Ridgw. Mountain Chickadee.

Found on the Catalina mountains in flocks, at and above 7000 feet; always in the tops of the lofty firs.¹

117. *Psaltiriparus plumbeus* Baird. Lead-colored Bush-Tit.

Found everywhere, within the limits of the oak belt.

118. *Auriparus flaviceps* (Sund.). Verdin.

While I occasionally saw the Verdin in the fringe of the oak growth, it became increasingly numerous as I neared Tucson where it was abundant.

- *119. *Regulus satrapa olivaceus* Baird. Western Golden-crowned Kinglet.

I found a male of this species among the fir tops near the summit of Mt. Lemon. It continued to utter a sweet song while I watched it through my glass.

120. *Polioptila cærulea obscura* Ridgw. Western Gnatcatcher.

Breeds in the lower edge of the pines, not common.

121. *Polioptila plumbea* Baird. Plumbeous Gnatcatcher.

Common everywhere among the foot-hills and higher uplands but rare in the valleys. In the lower pine belt it is replaced by the other species.

122. *Turdus aonalaschkæ auduboni* (Baird). Audubon's Hermit Thrush.

These thrushes sang continuously during my ascent of Mount Lemon, answering each other from the opposing cañons with the same measured cadences and pauses that characterize the song of

¹ This species does not seem to have been previously recorded from this district.—W. S.

pallasii. This was on the first day of July, and from what I observed, they were abundant and the breeding season was at its height.

*123. *Merula migratoria propinqua* Ridgw. Western Robin.

A small number found breeding among the Catalina pines.

124. *Sialia mexicana* Swains. Western Bluebird.

Abundant in the pine belt at all elevations.

The following were accidentally omitted from their proper place in the list.

Zenaidura macroura (Linn.). Mourning Dove.

Oracle and Tucson.

Melopelia leucoptera (Linn.). White-winged Dove.

Tucson.